

## Instructions

### FORM F1106

#### Actual Emissions Using Continuous Monitoring System Data

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Form F1106 is part of the form series provided to Title V Operating Permit holders to report annual emissions of regulated air pollutants subject to fees to the Department of Environmental Quality. The fee report process and the regulated air pollutants subject to fees are described in the general instructions for the F1100 form series. The instructions below are for form F1106.

The source owner or operator must complete form F1106 if he or she has chosen to pay for emissions from any device or process based on actual emissions using continuous monitoring system (CMS) data. He or she may pay for actual emissions based on CMS data only if:

- The CMS data were derived from an approved continuous emission monitor (CEM) per DEQ's Continuous Monitoring Manual. The manual is available on the Internet at <http://www.deq.state.or.us/aq/forms/sourcetest/cmmanual.pdf>; and
- The CMS was operated in accordance with DEQ's Continuous Monitoring Manual, the source's Title V permit conditions and all applicable rules in OAR Chapter 340.

Report one pollutant per form. Complete as many forms as needed to report all emission sources. Report the emissions determined on form F1106 on form F1102.

#### Form instructions

1. Enter the reporting year.
2. Enter the facility name. Include a site identifier if the corporation has multiple facilities by the same name in Oregon.
3. Enter the permit number.
4. Enter the pollutant.
5. Complete the following sections for each emission source (device or process).
  - a. Enter the device or process ID of the emission source. Add a short description of the device or process unless the ID contains one (e.g. "Gas Turbine #1" shows that the device is a natural gas-fired turbine and doesn't need additional description).
  - b. Enter each month's CMS emissions (in pounds) for the emission source. Multiply the CMS emission factor (lbs/hour) (determined from the hourly (clock) monthly average for the month) by the hours of operation. Adjust data per Appendix A of the Continuous Monitoring Manual and verify data quality per methods in the Manual. Exception: NSPS sources use 6-minute (clock) averages.
  - c. Enter the total CMS emissions (in pounds) for the reporting year. This is the sum of the CMS monthly emissions (5b).
  - d. Enter the total operating time of the emission source (in hours) for the reporting year.
  - e. Enter the total CMS downtime (in hours) for the reporting year. This is the amount of time that, while the emission source was operating, the CMS was not operating or the CMS data are unacceptable.
  - f. Determine the proportion of usable CMS data relative to total operating time. To calculate this value, subtract CMS downtime (5e) from total operating time (5d) and divide the result by total operating time (5d).
$$5f = (5d - 5e) / 5d$$
  - g. 90<sup>th</sup> percentile:
    - If the proportion of usable CMS data (5f) is at least 0.90, enter "not applicable". The 90<sup>th</sup> percentile is unnecessary because the CMS data are adequate for at least 90 percent of the total operating time.
    - If the proportion of usable CMS data (5f) is less than 0.90, determine the 90<sup>th</sup> percentile. The 90<sup>th</sup> percentile is the CMS value that is greater than (or equal to) 90 percent of all of the CMS values. An example of the 90<sup>th</sup> percentile calculations are shown below. To calculate the 90<sup>th</sup> percentile, rank

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the CMS values from lowest to highest and assign a record number to each value. The CMS values must be in pounds per hour. The lowest value’s record number is “1” and the highest value’s record number is equal to the total number of records. Multiply the total number of records by 0.90. Round the product to the nearest whole number. If the product is exactly between two whole numbers, round it to the nearest even number (e.g. round 13.5 to 14; round 18.5 to 18). The result indicates the 90<sup>th</sup> percentile record. The 90<sup>th</sup> percentile is the CMS value at the given record number. Enter this CMS value in 5g.

Example of 90<sup>th</sup> percentile calculations:

<u>CMS data value (lb/hr)</u>	<u>Record number</u>	
3.18	1	The CMS data values are ranked from lowest to highest. Each value is assigned a record number. The lowest value’s record number is “1.” The total number of records is 11.
3.24	2	
3.32	3	Multiply the total number of records by 0.90. 11 x 0.90 = 9.9
3.33	4	
3.41	5	Round the product to the nearest whole number. 9.9 → 10
3.44	6	
3.45	7	The 90 <sup>th</sup> percentile is at record number 10. At record number 10, the CMS value is 3.55. In this scenario, the owner or operator would enter 3.55 in 5g.
3.46	8	
3.50	9	
3.55	10	
3.57	11	

- h. Enter emissions from the emission source (in pounds) during CMS downtime.
    - Enter “zero” if the proportion of usable CMS data (5f) is at least 0.90.
    - If the proportion of usable CMS data (5f) is less than 0.90, calculate emissions (in pounds) during CMS downtime by multiplying the 90<sup>th</sup> percentile (5g) by CMS downtime (5e):  

$$5h = 5g \times 5e$$
  - i. Determine the total emissions in pounds. This is the sum of total CMS emissions (5c) and emissions during CMS downtime (5h):  

$$5i = 5c + 5h$$
  - j. Convert the total emissions to tons. Divide total emissions in pounds (5i) by 2,000.  

$$5j = 5i / 2,000$$
6. Enter page numbers for the form and the total number of F1106 forms being submitted to DEQ.